

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

1. (Currently amended) An image display device,
comprising:

a black correction part performing a black correction processing of correcting a black reproducibility of an image data containing a predetermined number of color data, to output a black-corrected image data; and

an image display means performing an image display on a predetermined screen based on said black-corrected image data,

said black correction part including:

a black-display characteristic specifying means performing a predetermined operation to specify a black-display characteristic specifying data related to a characteristic in displaying black with said image display means;

a black-approximated data calculating means calculating a black-approximated data composed of said predetermined number of color data and related to at least one of luminance, chromaticity and tristimulus values in displaying black based on said characteristic in displaying black with said image display

means on the basis of said black-display characteristic specifying data; and

a black-correction processing executing means executing said black correction processing to said image data in units of said predetermined number of color data based on said black-approximated data, to output said black-corrected image data.

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2. (Original) The image display device according to claim 1, wherein said black-correction processing executing means includes a black correction means performing a subtraction processing of subtracting a subtraction data based on said black-approximated data from said image data in units of said predetermined number of color data, to output said black-corrected image data.

3. (Original) The image display device according to claim 2, wherein said subtraction data includes said black-approximated data itself.

4. (Currently amended) The image display device, according to claim 3, wherein said black correction means includes:

a subtraction means subtracting said black-approximated data from said image data in units of said predetermined number of color data, to obtain data after subtraction; and

a limiter setting a color data of less than "0" zero in said predetermined number of color data contained in said data after subtraction to "0" zero, to obtain said black-corrected image data.

5. (Original) The image display device according to claim 2, wherein said black correction means includes:

a subtraction data calculating means calculating said black-approximated data itself as said subtraction data when said image data is larger than a predetermined value; and

a subtraction means subtracting said subtraction data from said image data in units of said predetermined number of color data, to obtain data after subtraction, and outputting said data after subtraction as said black-corrected image data.

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6. (Original) The image display device according to claim 5, wherein said subtraction data calculating means includes a subtraction data calculating means multiplying said black-approximated data with a multiplication factor of less than "1", when said image data is less than said predetermined value, to obtain said subtraction data.

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7. (Original) The image display device according to claim 1, wherein said black-correction processing executing means includes:

a look-up table storing a table data; and

a table data writing means, writing data in the form of a table capable of deriving one of said black-corrected image data from said image data as said table data, into said look-up table based on said black-approximated data,

said look-up table obtains said black-corrected image data based on said image data by referring to said table data.

8. (Original) The image display device according to claim 1, wherein said black-display characteristic specifying data includes data indicating a characteristic of a reflected light

of external light on the surface of said predetermined screen of said image display means.

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9. (Original) The image display device according to claim 8, wherein said black-approximated data calculating means includes a black-approximated data calculating means obtaining a specified value of luminance of a reflected light of external light based on said black-display characteristic specifying data, and calculating said black-approximated data such that a difference between the luminance of the color displayed on said image display means based on said black-approximated data and the luminance in displaying black with said image display means is equal to said specified value.

10. (Original) The image display device according to claim 8, wherein said black-approximated data calculating means includes a black-approximated data calculating means obtaining specified values of tristimulus values of a reflected light of external light based on said black-display characteristic specifying data, and calculating said black-approximated data such that a difference between the tristimulus values of the

color displayed on said image display means based on said black-approximated data and the tristimulus values in displaying black with said image display means is equal to said specified values.

11. (Currently amended). The image display device according to claim 8, wherein:

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said characteristic of a reflected light of external light includes a brightness of the reflected light of external light, and

said black-approximated data calculating means includes a black-approximated data calculating means calculating said black-approximated data based on said black-display characteristic specifying data by referring to a chromaticity data indicating a ratio of tristimulus values of a reflected light of external light and a correlation between a color data and tristimulus values in said image display means.

12. (Currently amended) The image display device according to claim 11, wherein:

said black-display characteristic specifying data further includes data indicating the kind of an external light, and

said black-approximated data calculating means includes a black-approximated data calculating means calculating said black-approximated data based on said black-display characteristic specifying data by referring to a ratio of tristimulus values of a reflected light of an external light of the kind specified by said black-display characteristic specifying data, and said chromaticity data.

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13. (Currently amended) The image display device according to claim 11, wherein:

said black-display characteristic specifying data further includes data indicating a color temperature of a reflected light of external light, and

said black-approximated data calculating means includes a black-approximated data calculating means calculating said black-approximated data based on said black-display characteristic specifying data by referring to a ratio of tristimulus values of the reflected light suited for said color temperature indicated by said black-display characteristic specifying data, and said chromaticity data.

14. (Currently amended) The image display device according to claim 8, wherein:

said characteristic of the reflected light of external light includes a luminance of the reflected light of external light, and

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said black-approximated data calculating means includes a black-approximated data calculating means calculating said black-approximated data based on said black-display characteristic specifying data by referring to a ratio of tristimulus values of a reflected light of external light, and a chromaticity data indicating a correlation between a color data and tristimulus values in said image display means.

15. (Currently amended) The image display device according to claim 8, wherein:

said characteristic of the reflected light of external light includes tristimulus values of the reflected light of external light, and

said black-approximated data calculating means includes a black approximated data calculating means calculating said black-approximated data based on said black-display

characteristic specifying data, by referring to a chromaticity data indicating a correlation between a color data and tristimulus values in said image display means.

16. (Original) The image display device according to claim 1, wherein said black-display characteristic specifying data includes data indicating a characteristic in displaying black with said image display means.

17. (Original) The image display device according to claim 16, wherein said black-approximated data calculating means includes a black-approximated data calculating means obtaining a specified value of luminance in displaying black based on said black-display characteristic specifying data, and calculating said black-approximated data such that a difference between the luminance of the color displayed on said image display means based on said black-approximated data and the luminance in displaying black with said image display means is equal to said specified value.

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18. (Original) The image display device according to claim 16, wherein said black-approximated data calculating means includes a black-approximated data calculating means obtaining specified values of tristimulus values in displaying black based on said black-display characteristic specifying data, and calculating said black-approximated data such that a difference between the tristimulus values of the color displayed on said image display means based on said black-approximated data and the tristimulus values in displaying black with said image display means is equal to said specified values.

19. (Currently amended) The image display device according to claim 16, wherein:

said characteristic in displaying black includes a brightness in displaying black, and

said black-approximated data calculating means includes a black-approximated data calculating means calculating said black-approximated data based on said black-display characteristic specifying data by referring to tristimulus values in displaying black in the absence of external light, a ratio of tristimulus values of a reflected light of external

light, and a chromaticity data indicating a correlation between a color data and tristimulus values in said image display means.

20. (Currently amended) The image display device according to claim 16, wherein:

said characteristic in displaying black includes a luminance in displaying black, and

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said black-approximated data calculating means includes a black-approximated data calculating means calculating said black-approximated data based on said black-display characteristic specifying data by referring to tristimulus values in displaying black in the absence of external light, a ratio of tristimulus values of a reflected light of external light, and a chromaticity data indicating a correlation between a color data and tristimulus values in said image display means.

21. (New) A method to perform black-correction of an image data for display to an image display device, comprising:

performing a black correction processing of correcting a black reproducibility of an image data containing a

predetermined number of color data, to output a black-corrected image data; and

performing an image display on a predetermined screen based on said black-corrected image data,

wherein the step of performing the black correction processing includes said black correction part includes:

performing a predetermined operation to specify a black-display characteristic specifying data related to a characteristic in displaying black with said image display means;

calculating a black-approximated data composed of said predetermined number of color data and related to at least one of luminance, chromaticity and tristimulus values in displaying black based on said characteristic in displaying black with step of performing the image display on the basis of said black-display characteristic specifying data; and

executing said black correction processing to said image data in units of said predetermined number of color data based on said black-approximated data, to output said black-corrected image data.

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22. (New) The method according to claim 21, wherein the step of executing said black correction processing includes subtracting a subtraction data based on said black-approximated data from said image data to output said black-corrected image data.

23. (New) The method according to claim 22, wherein said subtraction data includes said black-approximated data itself.

24. (New) The method according to claim 23, wherein said step of executing said black correction processing further includes:

subtracting said black-approximated data from said image data in units of said predetermined number of color data, to obtain data after subtraction; and

setting a color data of less than zero in said predetermined number of color data contained in said data after subtraction to zero, to obtain said black-corrected image data.

25. (New) The method according to claim 22, wherein said step of executing said black correction processing further includes:

calculating said black-approximated data itself as said subtraction data when said image data is larger than a predetermined value; and

subtracting said subtraction data from said image data in units of said predetermined number of color data, to obtain data after subtraction, and outputting said data after subtraction as said black-corrected image data.

26. (New) The method according to claim 25, wherein said step of calculating said black-approximated data includes multiplying said black-approximated data with a multiplication factor of less than "1", when said image data is less than said predetermined value, to obtain said subtraction data.

27. (New) The method according to claim 21, wherein said step of executing said black-correction processing includes:

writing data in a form of a table capable of deriving one of said black corrected image data from said image data as a

table data, into a look-up table based on said black-approximated data; and

obtaining said black-corrected image data based on said image data by referring to said table data.

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28. (New) The method according to claim 21, further comprising specifying said black-display characteristic specifying data related to displaying black on said image display device, wherein said black-display characteristic specifying data includes data indicating a characteristic of a reflected light of external light on the surface of said image display device.

29. (New) The method according to claim 28, wherein said step of calculating said black-approximated data includes:

obtaining a specified value of luminance of a reflected light of external light based on said black-display characteristic specifying data; and

calculating said black-approximated data such that a difference between the luminance of the color displayed on said image display device based on said black-approximated data and

the luminance in displaying black with said image display device is equal to said specified value.

30. (New) The method according to claim 28, wherein said step of calculating said black-approximated data includes:

obtaining specified values of tristimulus values of a reflected light of external light based on said black-display characteristic specifying data; and

calculating said black-approximated data such that a difference between the tristimulus values of the color displayed on said image display device based on said black-approximated data and the tristimulus values in displaying black with said image display device is equal to said specified values.

31. (New) The method according to claim 28, wherein:

said characteristic of a reflected light of external light includes a brightness of the reflected light of external light, and

said step of calculating said black-approximated data includes calculating said black-approximated data based on said black-display characteristic specifying data by referring to a

chromaticity data indicating a ratio of tristimulus values of a reflected light of external light and a correlation between a color data and tristimulus values in said image display device.

32. (New) The method according to claim 31, wherein:

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said black-display characteristic specifying data further includes data indicating the kind of an external light, and

said step of calculating said black-approximated data further includes calculating said black-approximated data based on said black-display characteristic specifying data by referring to a ratio of tristimulus values of a reflected light of an external light of the kind specified by said black-display characteristic specifying data, and said chromaticity data.

33. (New) The method according to claim 31, wherein:

said black-display characteristic specifying data further includes data indicating a color temperature of a reflected light of external light, and

said step of calculating said black-approximated data further includes calculating said black-approximated data based on said black-display characteristic specifying data by

referring to a ratio of tristimulus values of the reflected light suited for said color temperature indicated by said black-display characteristic specifying data, and said chromaticity data.

34. (New) The method according to claim 28, wherein:

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said characteristic of the reflected light of external light includes a luminance of the reflected light of external light, and

said step of calculating said black-approximated data includes calculating said black-approximated data based on said black-display characteristic specifying data by referring to a ratio of tristimulus values of a reflected light of external light, and a chromaticity data indicating a correlation between a color data and tristimulus values in said image display device.

35. (New) The method according to claim 28, wherein:

said characteristic of the reflected light of external light includes tristimulus values of the reflected light of external light, and

said step of calculating said black-approximated data includes calculating said black-approximated data based on said black-display characteristic specifying data, by referring to a chromaticity data indicating a correlation between a color data and tristimulus values in said image display device.

36. (New) The method according to claim 21, wherein said black-display characteristic specifying data includes data indicating a characteristic in displaying black with said image display device.

37. (New) The method according to claim 36, wherein said step of calculating said black-approximated data includes:

obtaining a specified value of luminance in displaying black based on said black-display characteristic specifying data; and

calculating said black-approximated data such that a difference between the luminance of the color displayed on said image display device based on said black-approximated data and the luminance in displaying black with said image display device is equal to said specified value.

38. (New) The method according to claim 36, wherein said step of calculating said black-approximated data further includes:

obtaining specified values of tristimulus values in displaying black based on said black-display characteristic specifying data; and

calculating said black-approximated data such that a difference between the tristimulus values of the color displayed on said image display device based on said black-approximated data and the tristimulus values in displaying black with said image display device is equal to said specified values.

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39. (New) The method according to claim 36, wherein:

said characteristic in displaying black includes a brightness in displaying black, and

said step of calculating said black-approximated data includes calculating said black-approximated data based on said black-display characteristic specifying data by referring to tristimulus values in displaying black in the absence of external light, a ratio of tristimulus values of a reflected

light of external light, and a chromaticity data indicating a correlation between a color data and tristimulus values in said image display device.

40. (New) The method according to claim 36, wherein:

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said characteristic in displaying black includes a luminance in displaying black, and

said step of calculating said black-approximated data includes calculating said black-approximated data based on said black-display characteristic specifying data by referring to tristimulus values in displaying black in the absence of external light, a ratio of tristimulus values of a reflected light of external light, and a chromaticity data indicating a correlation between a color data and tristimulus values in said image display device.